DSB-500-860

Digital Signage Media Player

User's Manual

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The DSB-500-860 does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the DSB-500-860 before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the DSB-500-860 is properly grounded.
4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
5. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.
6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20℃ or above 80℃. It may damage the equipment.
7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of production against electric shock : not classified
2. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
3. Mode of operation : Continuous

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.
When you need to clean the device, please rub it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
2. Turn the system off before you start to clean up the component or computer.
3. Never drop the components inside the computer or get circuit board damp or wet.
4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- Vacuum cleaner: Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.
- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.
- Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.

Note: We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below:

1. Close all application programs
2. Close operating software
3. Turn off power switch
4. Remove all device
5. Pull out power cable

Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform your Axiomtek distributor as soon as possible for the suitable solution. For the computers that are no longer useful or no longer working well, please contact your Axiomtek distributor for recycling and we will make the proper arrangement.

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the DSB-500-860. The Chapter 1 includes the following sections:

- General Description
- System Specification
- Dimensions
- I/O Outlets
- Package List

1.1 General Description

The DSB-500-860 is an embedded system that supports Intel 2nd generation i3/i5/i7 processor to provide Windows® XPE, Windows 7® Embedded, Windows® XP, Windows® WinCE embedded and Linux, suitable for the most endurable operation.

It features high performance design with full feature I/O, one 204-pin DDR3 SODIMM, and enhanced system dependability by built-in Watchdog Timer.

- **Features**

  1. Intel® QM67 PCH
  2. Support Intel 2nd generation i3/i5/i7 processor
  3. One 204-pin unbuffered SO-DIMM socket for single channel DDR3-1600 MHz memory, maximum memory capacity up to 8GB
  4. One VGA port
  5. One HDMI port
  6. One DP port
  7. Supports 4 USB 2.0 ports
  8. Supports one 10/100/1000Mbps Ethernet port
  9. One 2.5" SATA HDD/SSD drive bay(9.5mm height)
  10. Watchdog timer
  11. 90W adapter
  12. Power cord
  13. Wall mount (optional)
  14. VESA mount (optional)
  15. PCI-Express Mini Card Module (optional)
  16. Antenna (optional)

- **Reliable and Stable Design**

  The DSB-500-860 adopts the advanced cooling system, which makes it especially suitable for vibration environments, best for industrial automation, digital signage and gaming application.

- **Embedded O.S. Supported**

  The DSB-500-860 not only supports Windows 7, Windows Vista, Windows XP, but also supports embedded OS, such as Windows XP embedded, WinCE and Linux.

- **Various Storage devices supported**

  For storage device, the DSB-500-860 supports one 2.5" SATA HDD drive bay.

1.2 System Specifications

1.2.1 CPU

- **CPU**

  Intel® 2nd generation i3/i5/i7 processor

- **System Chipset**

  Intel® QM67 PCH

- **BIOS**
  - American Megatrends Inc. UEFI (Unified Extensible Firmware Interface) BIOS
  - 16Mbit SPI Flash, DMI, Plug and Play
- **System Memory**
  - One 204-pin unbuffered DDR3 SO-DIMM socket
  - Maximum to 8GB DDR3 1600 MHz memory for i7 processor

1.2.2 I/O System

- One 15-pin D-Sub female connector for VGA
- One DP port
- One HDMI port
- One Audio phone jack (MIC-IN, Line-OUT)
- One RJ-45 connector for 10/100/1000Base-T Ethernet
- four USB 2.0 connectors
- One 19V DC Jack for power input connector

1.2.3 System Specification

- Watchdog Timer

  Reset supported; 255 levels, 1~255 sec.

- Power Supply

  External 19V@4.74A, 90W AC/DC power adapter

- Operation Temperature

  0℃ ~ 40℃ (32 ºF ~ 104ºF), Intel® 2nd generation i7 processor

- Storage Temperature

  -20℃ ~ 80℃ (-4 ºF ~ 176ºF)

- Humidity

  10% ~ 90% (non-condensation)

- Weight

  1.5 kg without package

  2.5 kg with package

- Dimensions

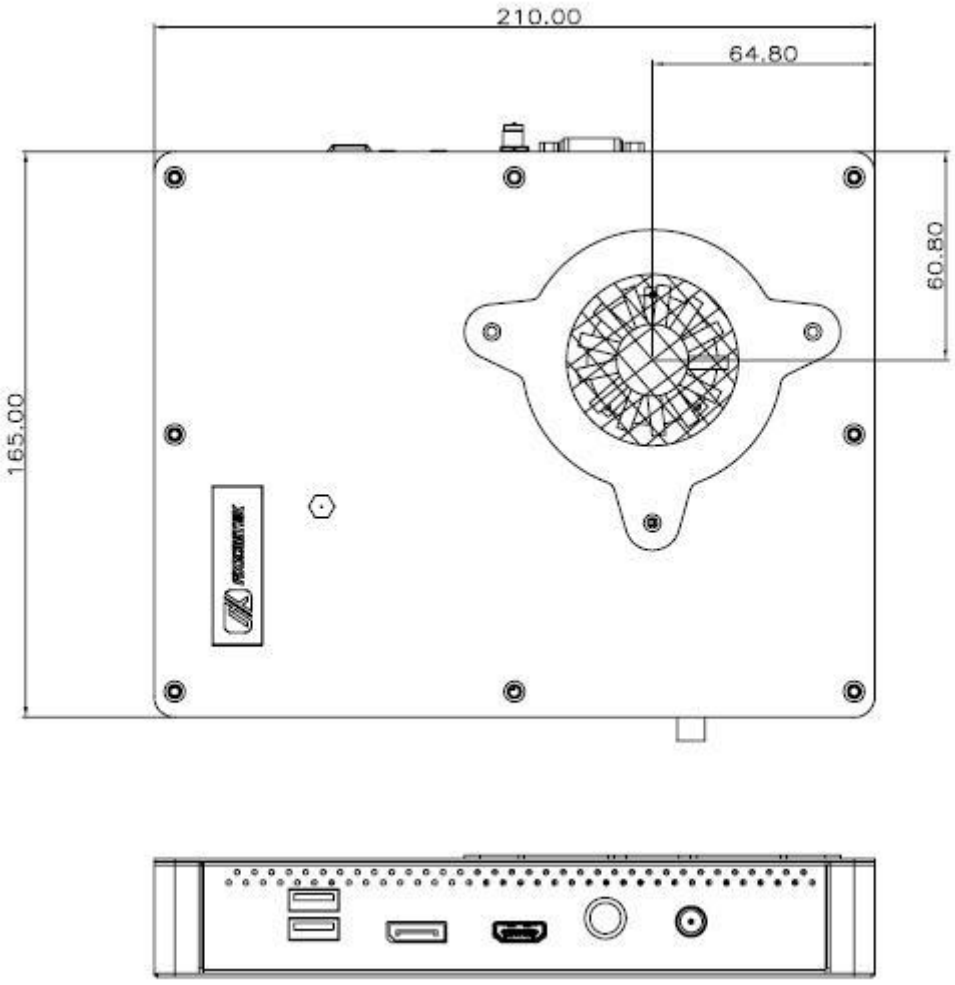
  210mm(8.26") (W) x 165mm(6.49") (D) x 35mm(1.37") (H)

Note: All specifications and images are subject to change without notice.

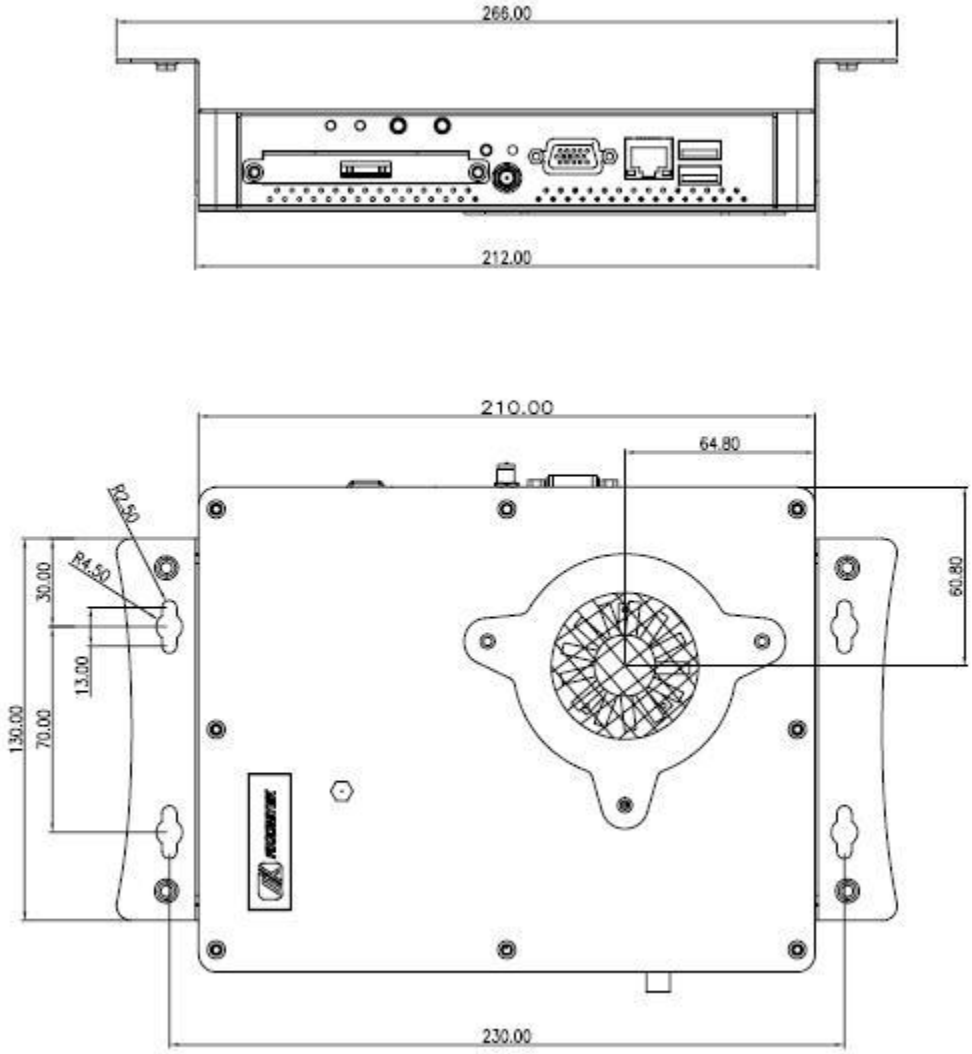
1.3 Dimensions

The following diagrams show you dimensions and outlines of the DSB-500-860.

1.3.1 System Dimension



1.3.2 Wall mounts Bracket Dimension

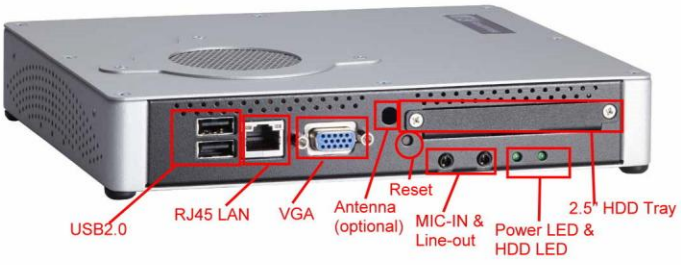


1.4 I/O Outlets

The following figures show you I/O outlets on front view of the DSB-500-860.

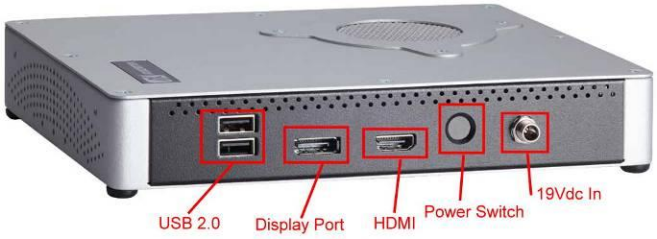
- **Front View**

- **Front View drawing**



- **Rear View**

- **Rear View drawing**



1.5 Packing List

The package bundled with your DSB-500-860 should contain the following items:

- DSB-500-860 System Unit x 1
- CD x 1 (For Driver and User's Manual)
- Screws pack x1
- 90W AC/DC Power Adapter
- Wall-mount Brackets (optional)

If you cannot find this package or any items are missing, please contact Axiomtek distributors immediately.

MEMO:

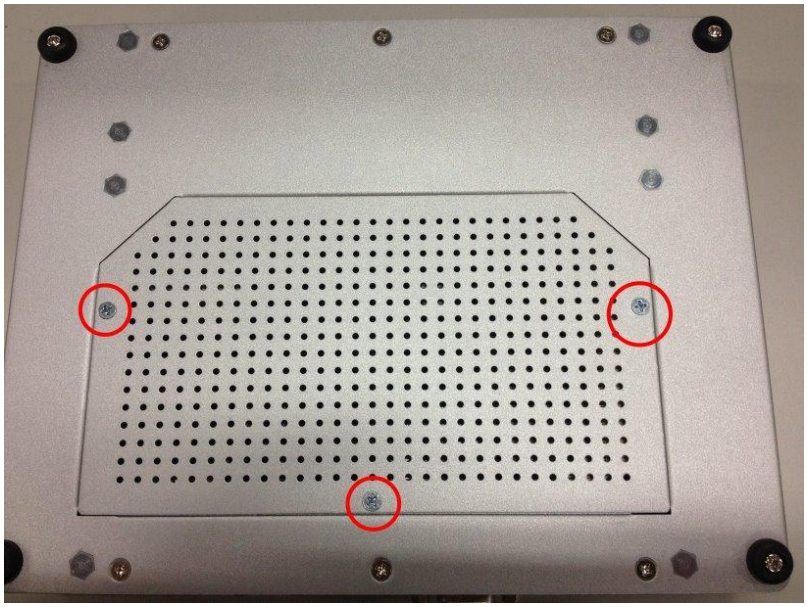
CHAPTER 2
HARDWARE INSTALLATION

The DSB-500-860 is convenient for your various hardware configurations, such as Memory Module, HDD (Hard Disk Drive), and SSD (Solid State Drive). The chapter 2 will show you how to install the hardware.

2.1 Installing the Memory Module

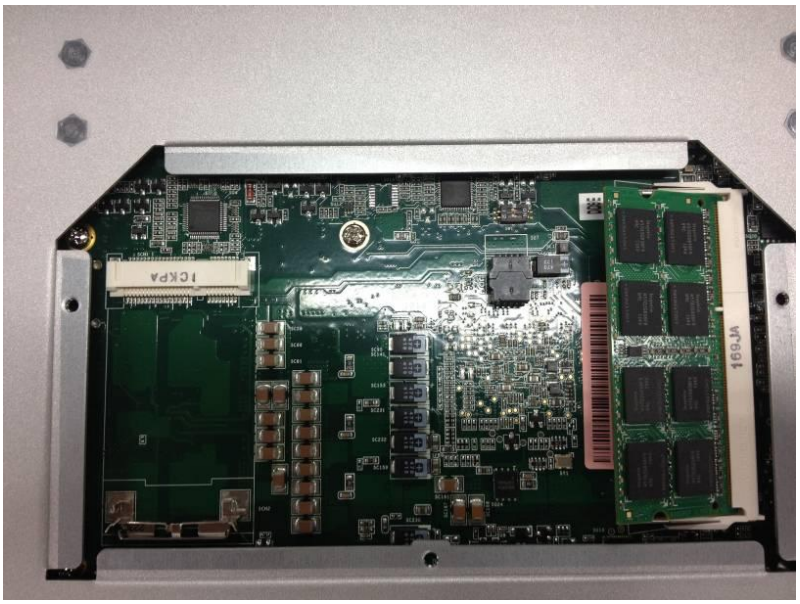
Step 1 Turn off the system, and unplug the power cord.

Step 2 Turn the system upside down to locate screws at the Bottom, loosen screws.

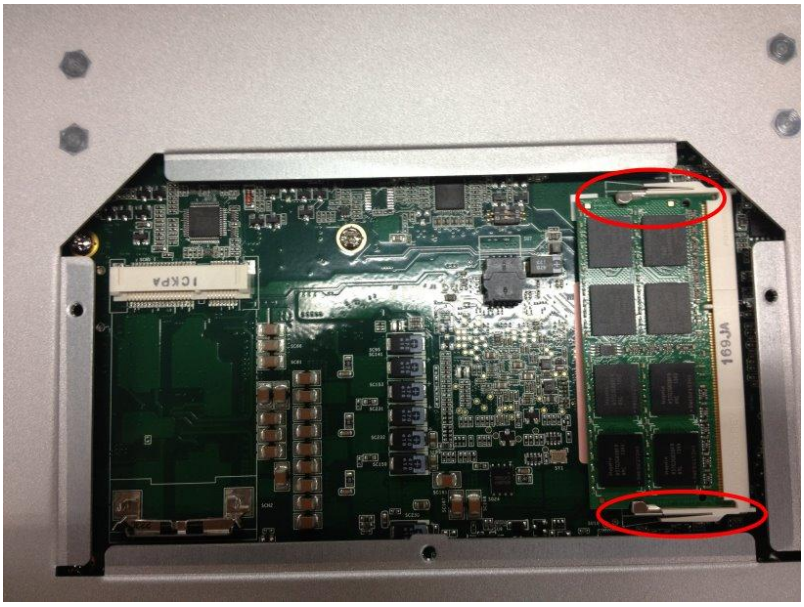


Step 3 Remove the bottom cover.

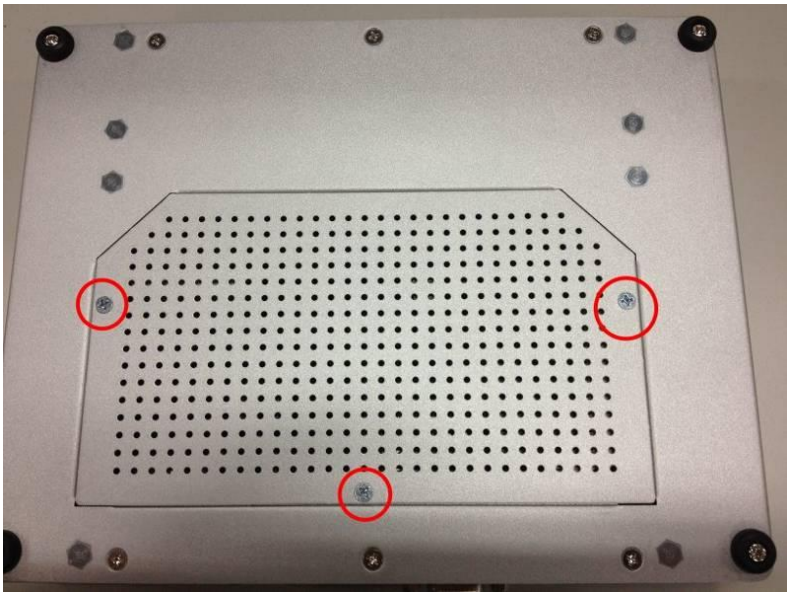
Step 4 Locate the memory module, insert the gold colored Contact into the socket.



Step 5 Push the module down, until it is firmly seated by locking two latches on the sides.



Step 6 Close the cover to the chassis, and fasten all screws.



2.2 Installing the SATA HDD

Step 1 Turn off the system, and unplug the power cord.

Step 2 Turn the system upside down to locate screws at the Front side, loosen screws.

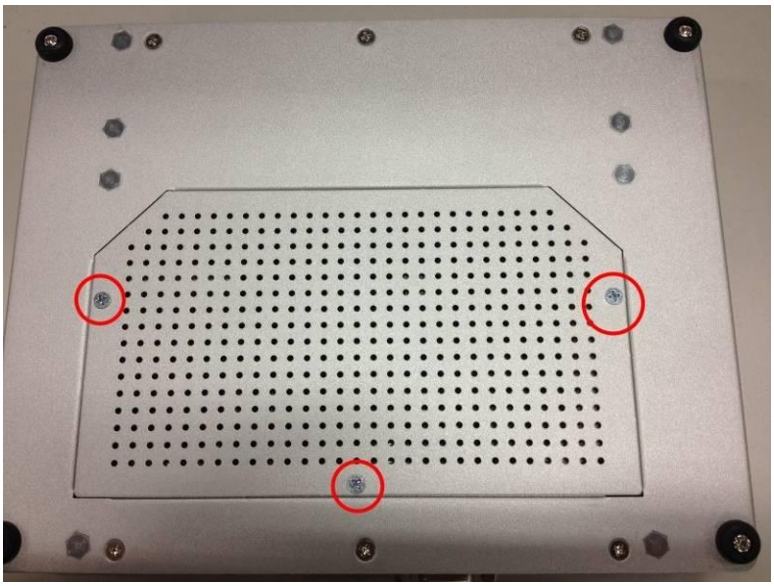
Step 3 Fasten all screws.

Step 4 Close the bottom cover to the chassis, and fasten all of Screws.

2.3 Installing the PCI-Express Mini Card

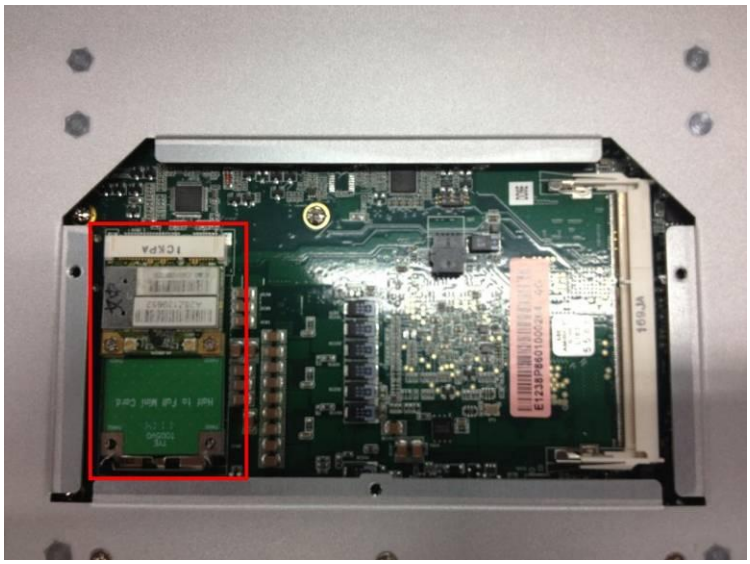
Step 1 Turn off the system, and unplug the power cord.

Step 2 Turn the system upside down to locate screws at the Bottom, loosen screws.

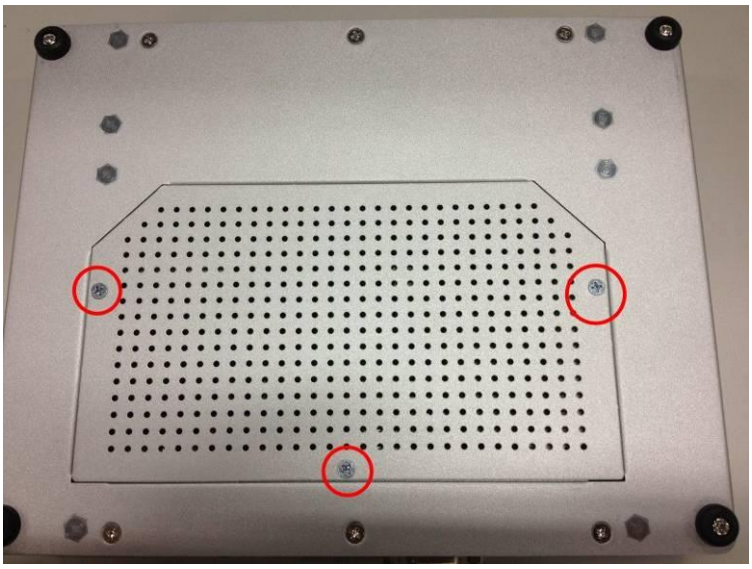


Step 3 Slide Mini cards into Mini Card slot with caution and Fasten screw of Express Mini Card.

Step 4 Slide Mini cards into Mini Card slot with caution and Fasten screw of Express Mini Card.



Step 5 Assembly the Top Cover back and fasten all screws.



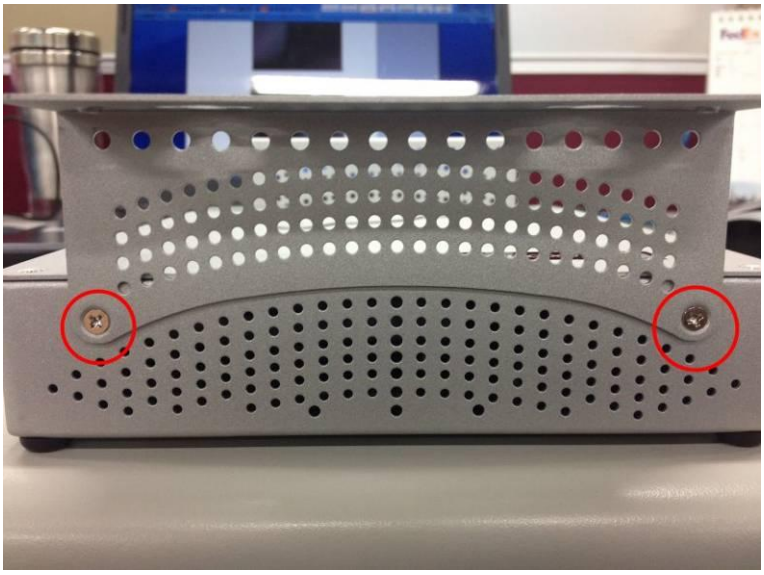
Note: In likely conditions, user may have to replace new thermal pads when existing thermal pad are damaged, dirty or missed. There are two thermal pads in the accessory kit for the need.

2.4 Installing the Wall Mount (Optional)

The DSB-500-860 provides wall Mount that customers can install as below:

Step 1 Prepare Wall Mount assembling components (screws and bracket) ready.

Step 2 Fix the wall mount to the correct location, and fasten all screws.



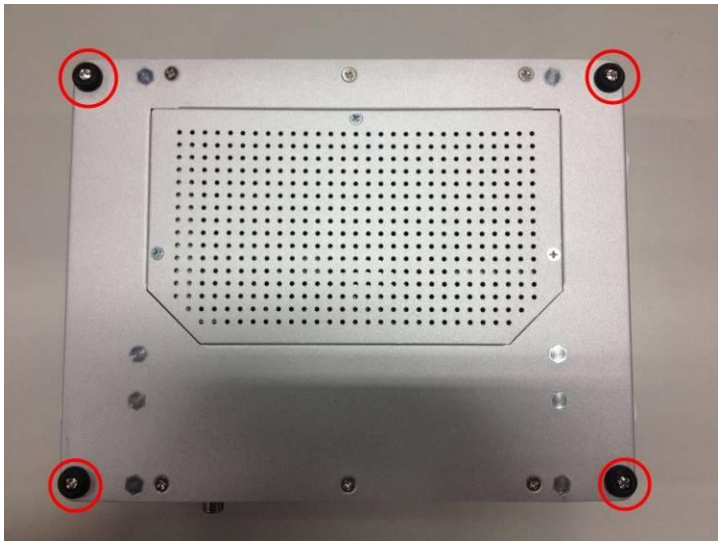
Step 3 Fix the wall mount to the correct location, and fasten all screws.

2.5 Installing the VESA Mount (optional)

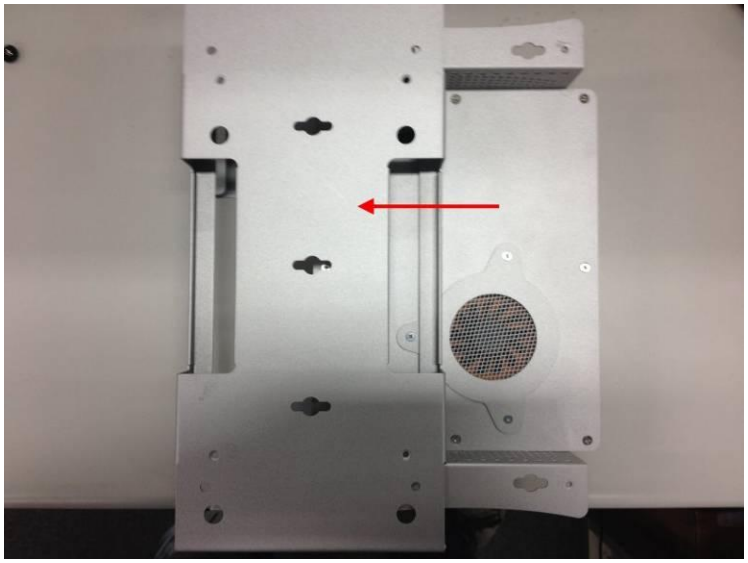
The DSB-500-860 provides VESA Mount that customers can install as below:

Step 1 Prepare VESA Mount assembling components (screws and VESA mount bracket) ready.

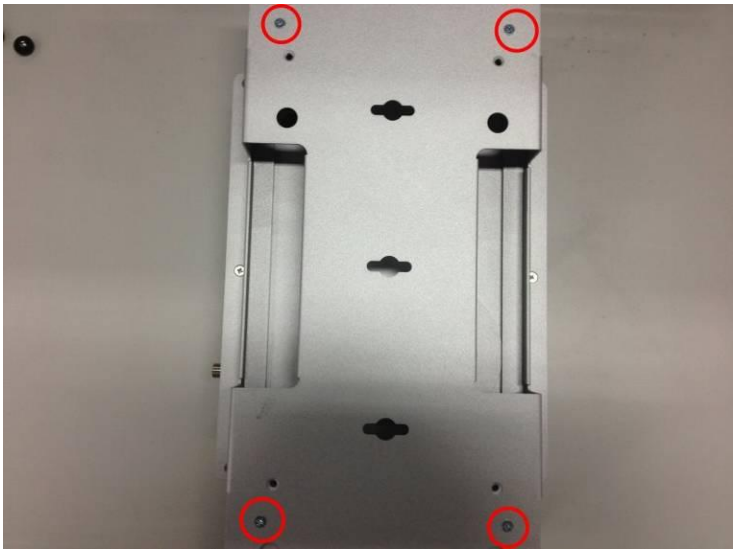
Step 2 Loose the screw of four footpads at the bottom of DSB-500-860, and remove footpad.



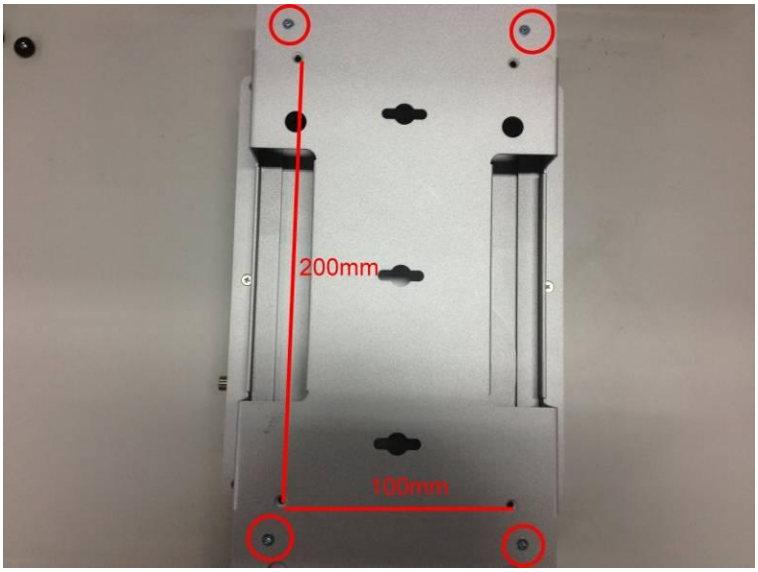
Step 3 Put the DSB-500-860 into the VESA mount kit.



Step 4 Fasten screws of VESA mount kit.



Step 5 Decide correct mounting direction.DSB-500-860 supports 200x100mm VESA mount. The 200x100mm type has special direction.

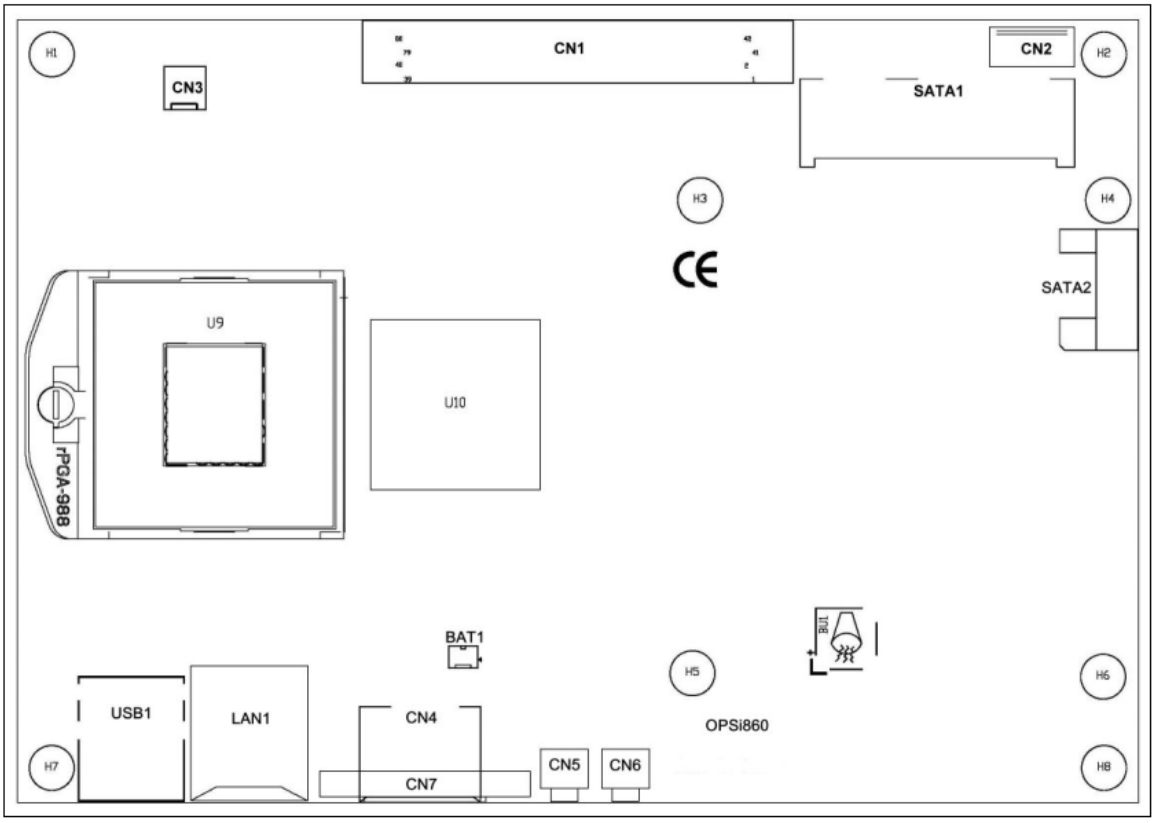


MEMO:

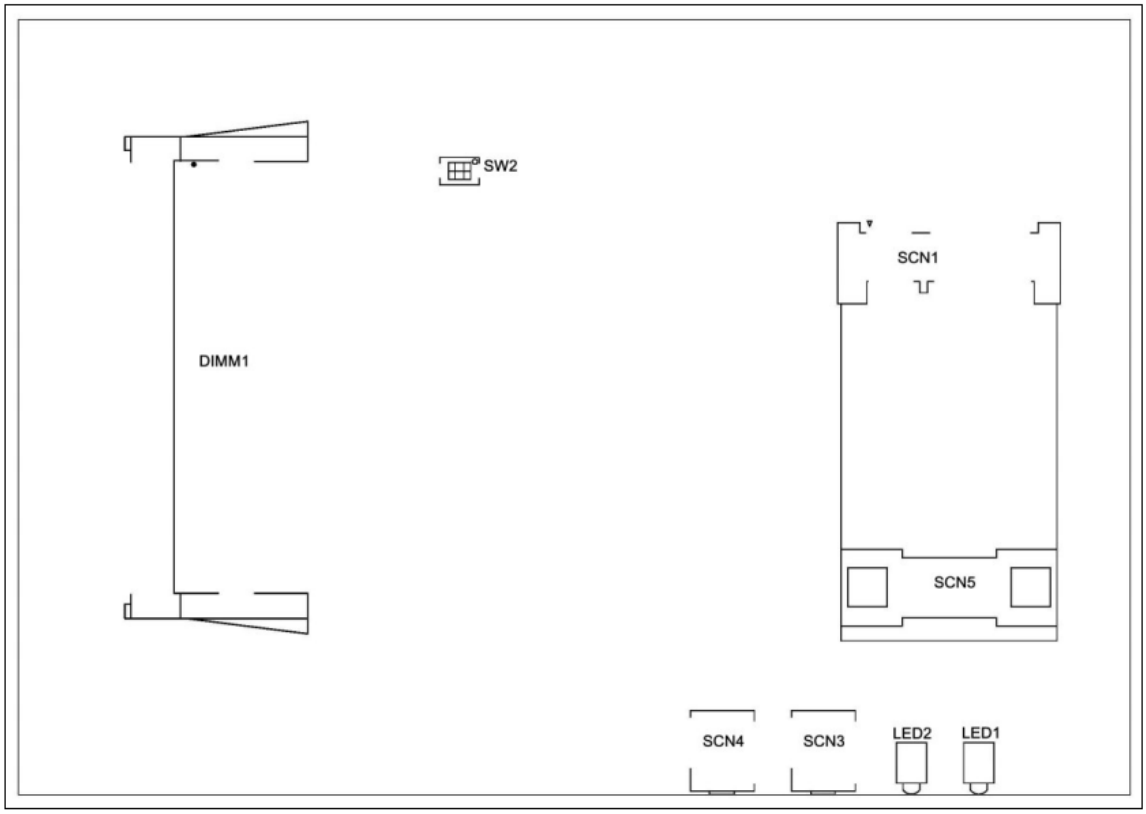
CHAPTER 3
JUMPER SETTING & CONNECTOR

Proper jumper settings configure the DSB-500-860 to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

3.1 SBC layout



TOP Side



Bottom Side

Note: We strongly recommended that you should not modify any unmentioned jumper setting without Axiomtek FAE's instruction. Any modification without instruction might cause system to become damage.

3.2 Jumper Setting Summary

Proper jumper settings configure the DSB-500-860 to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.
Here is a summary table shows you all connectors on the board.

Connector	Label
ATX Auto Power On (SW-1)	SW1
Clear CMOS (SW-2)	

3.3 Connectors

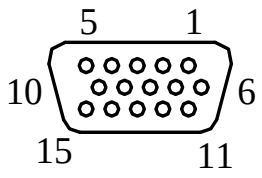
Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the DSB-500-860.

Connector	Label
SATA 1 Power Connector	CN2
CPU FAN	CN3
Display Port (BOM Option)	CN4
POWER BUTTON	CN5
RESET BUTTON	CN6
VGA Port	CN7
Mini Card Slot	SCN1
Audio MIC-IN Connector	SCN3
Audio LINE-OUT Connector	SCN4
Battery 2 PIN	BAT1
RJ45 (WG82579LM)	LAN1
USB Port 0/1	USB1
HDD LED	SLED1
Power LED	SLED2

3.3.1 VGA Connector

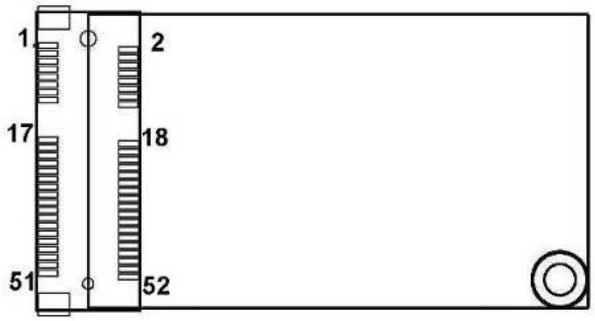
DB15 CRT Connector (CN7) Co-layout with CN4
CN7 is a DB15 connector commonly used for the CRT Monitor.

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	N.C	5	GND	6	DETECT
7	GND	8	GND	9	VCC
10	GND	11	N.C	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

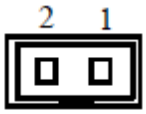


3.3.2 Mini card slot

Pin	Signal	Pin	Signal	Pin	Signal
1	WAKE#	2	3.3V	3	RVD1
4	GND	5	RVD2	6	+1.5V
7	CLKREQ#	8	RVD19	9	GND
10	RVD18	11	REFCLK-	12	RVD16
13	REFCLK+	14	RVD15	15	GND
16	RVD14	17	RVD3	18	GND
19	RVD4	20	RVD13	21	GND
22	PERST#	23	PERN0	24	+3.3VAUX
25	PERP0	26	GND	27	GND
28	+1.5V	29	GND	30	SMB_CLK
31	PETN0	32	SMB_DATA	33	PETP0
34	GND	35	GND	36	USB_D-
37	RVD5	38	USB_D+	39	RVD6
40	GND	41	+3.3VAUX	42	LED_WWAN#
43	RVD8	44	LED_WLAN#	45	RVD9
46	LED_WPAN#	47	RVD10	48	+1.5V
49	RVD11	50	GND	51	RVD12
52	+3.3V	53	NH1	54	NH2
55	NH3	56	NH4		



3.3.3 Battery 2pin

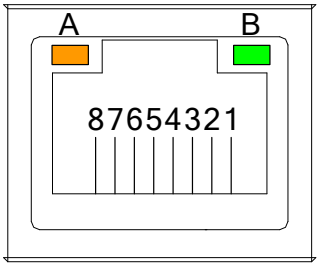
Pin	Description	
1	+VBAT	
2	GND	

3.3.4 ATX Auto power (SW1) / Clear CMOS (SW2)

SW	On	Off
1	Auto On	ATX
2	Clear	Normal

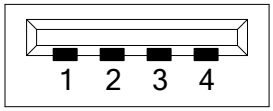
3.3.5 LAN

The RJ-45 connector LAN1 is for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

Pin	Signal	
1	Tx+ (Data transmission positive)	
2	Tx- (Data transmission negative)	
3	Rx+(Data reception positive)	
4	RJ-1(For 1000 base T-Only)	
5	RJ-1(For 1000 base T-Only)	
6	Rx- (Data reception negative)	
7	RJ-1(For 1000 base T-Only)	
8	RJ-1(For 1000 base T-Only)	
A	Active LED	
B	Speed LED	

3.3.6 USB Port

Signal
USB_POWER
USB -
USB +
GND



3.3.7 Audio Connector

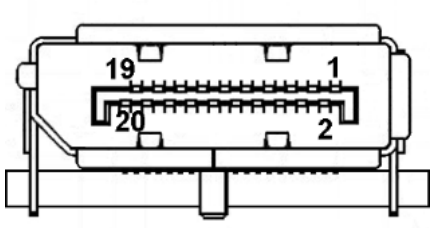
These two audio jacks ideal are for Audio Mic-In and Audio Line-out.

Pin	Signal
1	Microphone In
2	Line Out

3.3.8 Display Port Connector

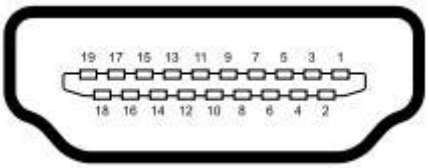
Display Port is a standard designed to replace digital (DVI) and analog component video (VGA) connectors in computer monitors and video cards, as well as replace internal digital LVDS links in computer monitor panels and TV panels.

Pin	Signal
1	DPB_LANE0
2	GND
3	DPB_LANE0#
4	DPB_LANE1
5	GND
6	DPB_LANE1#
7	DPB_LANE2
8	GND
9	DPB_LANE2#
10	DPB_LANE3
11	GND
12	DPB_LANE3#
13	Detect Pin
14	GND
15	DPB_AUX
16	GND
17	DPB_AUX#
18	DPB_HPDE
19	GND
20	+3.3V



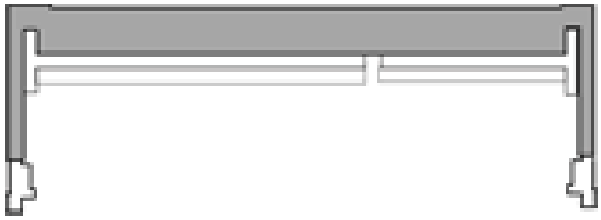
3.3.9 HDMI Connector

Pin	Signal
1	TMDS Data2+
2	TMDS Data2 shield
3	TMDS Data2-
4	TMDS Data1+
5	TMDS Data1 shield
6	TMDS Data1-
7	TMDS Data0+
8	TMDS Data0 shield
9	TMDS Data0-
10	TMDS Clock+
11	TMDS Clock shield
12	TMDS Clock-
13	CEC
14	Reserved, HEC Data-
15	SCL
16	SDA
17	DCC/CEC/HEC Ground
18	+5V
19	Hot Plug detect and HEC Data+



3.3.10 DDR3 SODIMM Socket

DSB-500-860 supports standard DDR3 204-pin 1066/1333 MHz SO-DIMM pin define



MEMO:

CHAPTER 4
AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMI BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

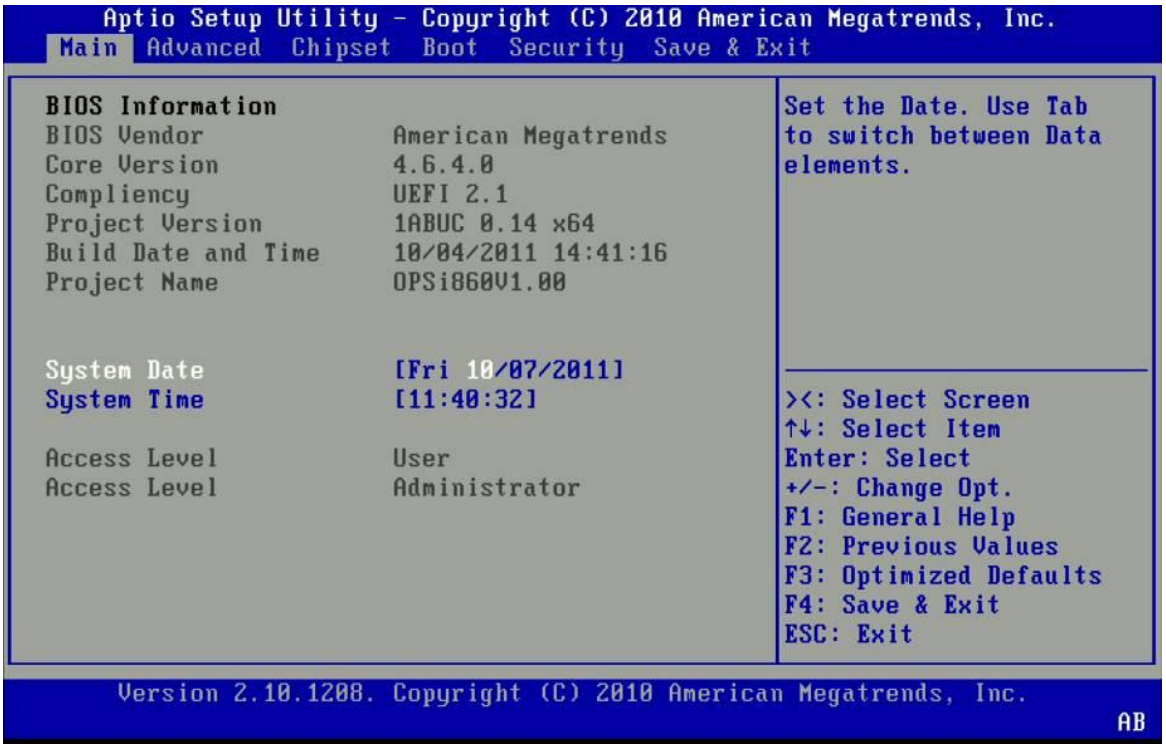
These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

Note: Some of navigation keys differ from one screen to another.

← Left/Right	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
BIOS Information
BIOS Vendor American Megatrends
Core Version 4.6.4.0
Compliency UEFI 2.1
Project Version 1ABUC 0.14 x64
Build Date and Time 10/04/2011 14:41:16
Project Name OPSi860V1.00
System Date [Fri 10/07/2011]
System Time [11:40:32]
Access Level User
Access Level Administrator
Set the Date. Use Tab to switch between Data elements.
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
AB

- **System Time/Date**

  Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

4.4 Advanced Menu

- **Launch PXE OpROM**

Use this item to enable or disable the Boot ROM function of the onboard LAN chip when the system boots up.

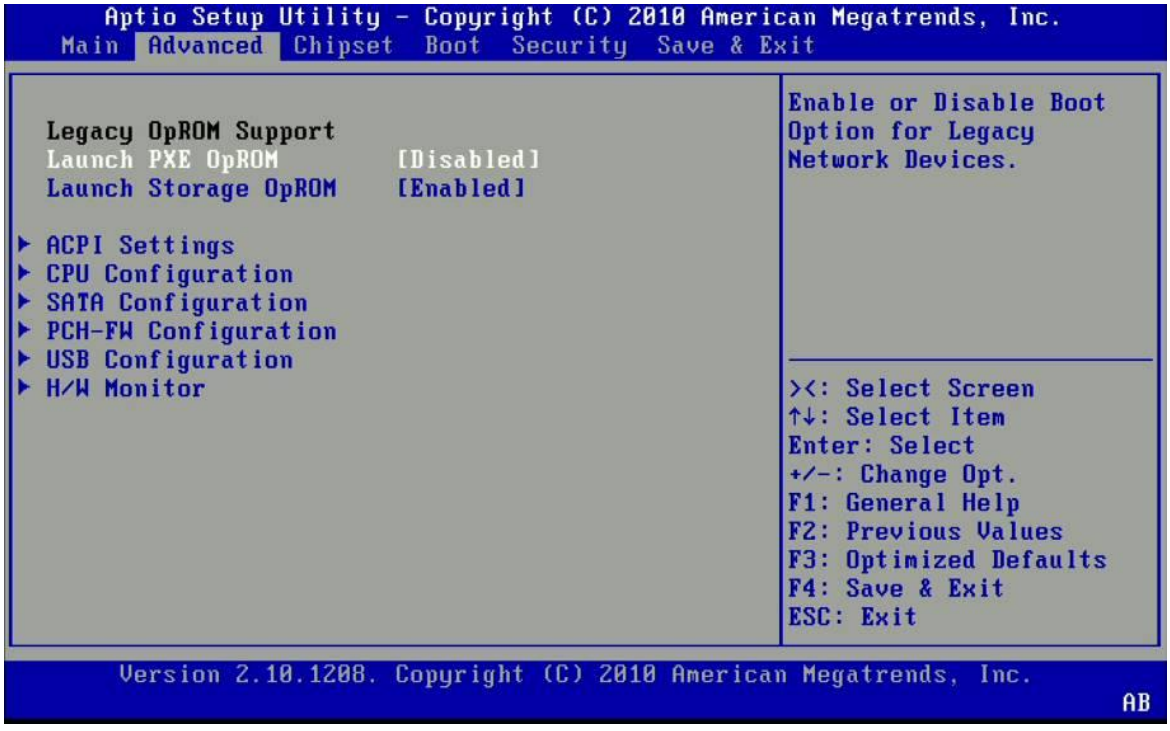
- **Launch Storage OpROM**

This item can set enable or disable the storage device option ROM with CF device.

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

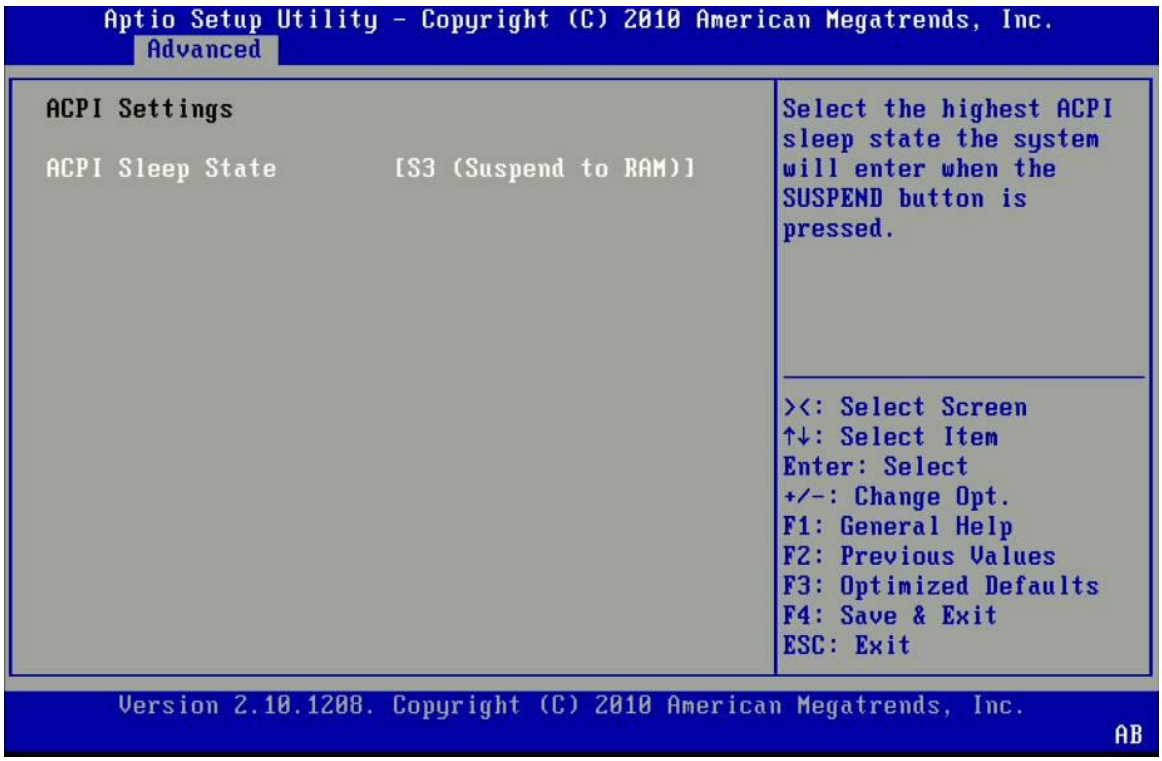
- **ACPI Settings**
- **CPU Configuration**
- **SATA Configuration**
- **PCH-FW Configuration**
- **USB Configuration**
- **H/W Monitor**

For items marked with "►", please press <Enter> for more options.



- **ACPI Settings**

You can use this screen to select options for the ACPI Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

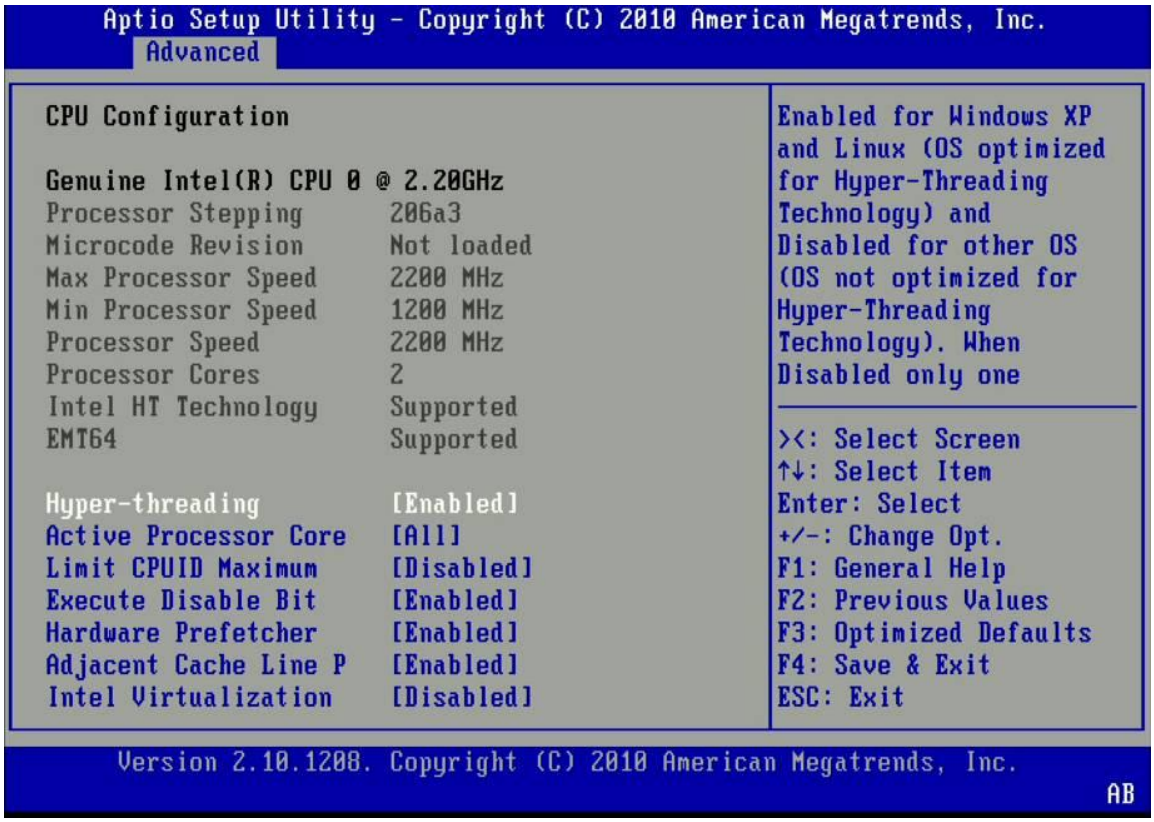

Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
ACPI Settings
ACPI Sleep State [S3 (Suspend to RAM)]
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
AB

- **ACPI Sleep State**

  Allow you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Here are the options for your selection, S1 (CPU Stop Clock), S3 (Suspend to RAM) and Suspend Disable.

- **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
CPU Configuration
Genuine Intel(R) CPU 0 @ 2.20GHz
Processor Stepping 206a3
Microcode Revision Not loaded
Max Processor Speed 2200 MHz
Min Processor Speed 1200 MHz
Processor Speed 2200 MHz
Processor Cores 2
Intel HT Technology Supported
EM64T Supported
Hyper-threading [Enabled]
Active Processor Core [All]
Limit CPUID Maximum [Disabled]
Execute Disable Bit [Enabled]
Hardware Prefetcher [Enabled]
Adjacent Cache Line P [Enabled]
Intel Virtualization [Disabled]
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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- **Active Processor Cores**

  This feature controls the number of cores to enable in each processor package

- **Limit CPUID Maximum**

  This determines the kind of basic information CPUID can provide the operating system. The maximum CPUID input value determines the values that operating system can write to the CPUID's EAX register to obtain information about processor.(When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes.)

- **Execute Disable Bit**

  Execute Disable Bit is a hardware-based security feature that can reduce exposure to viruses and malicious-code attacks and prevent harmful software from executing and propagating on the server o network

- **Hardware Prefetcher**

  Enabling/disabling hardware prefetch mechanisms on discrete applications can help system integrators and software developers obtain optimal performance for solutions running on Intel® Core™ Microarchitecture-based processors.

- **Adjacent Cache Line Prefetch**

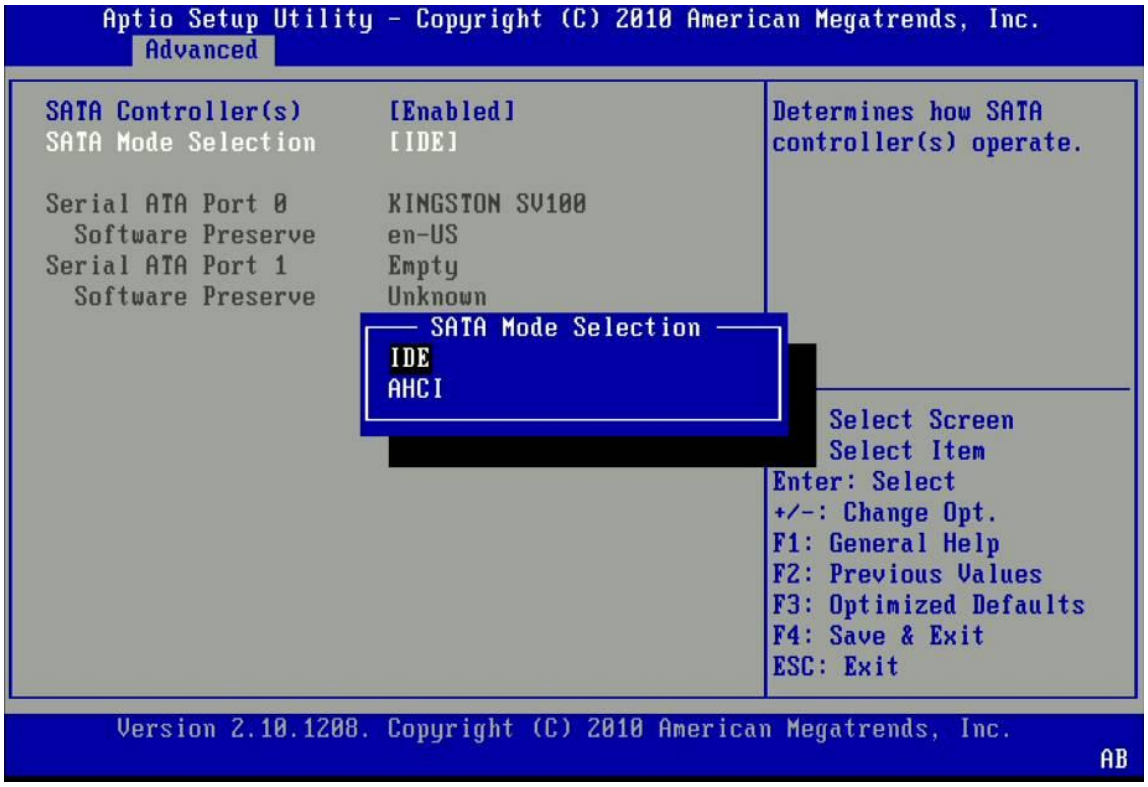
  When enabled, the processor will retrieve the currently requested cache line, as well as the subsequent cache line.
  When disabled, the processor will only retrieve the currently requested cache line

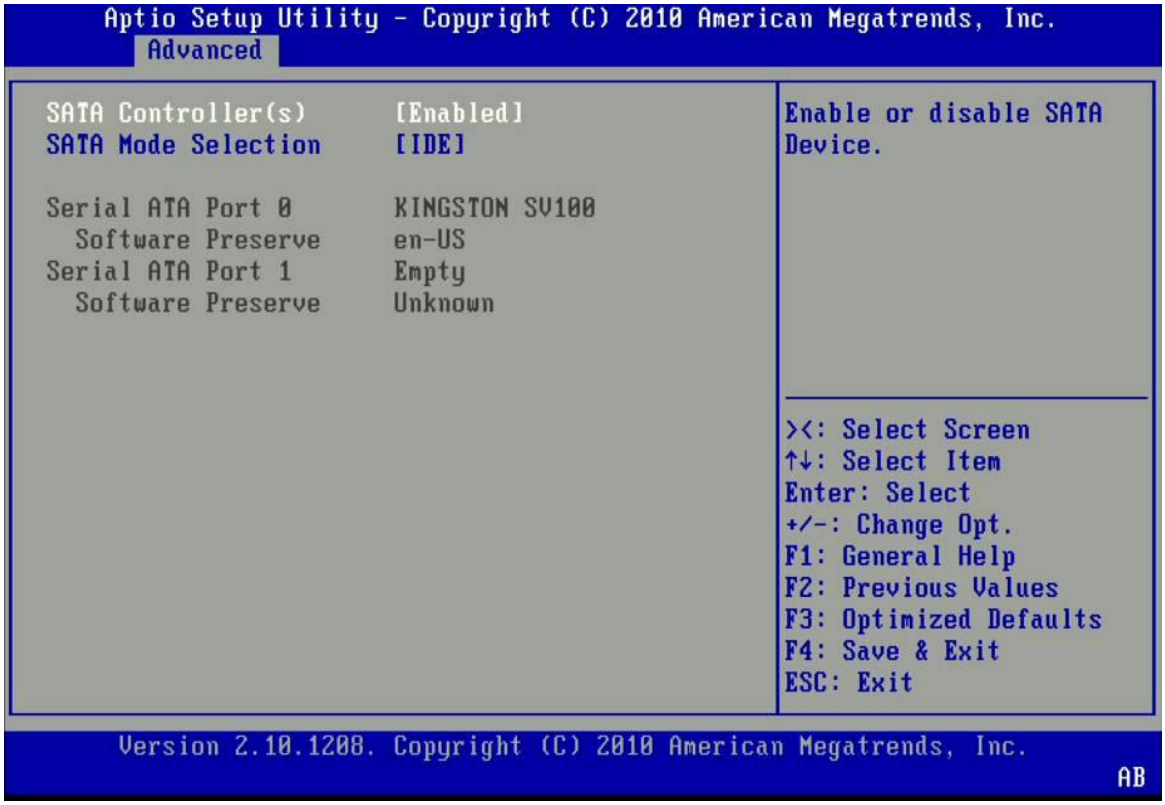
- **Intel Virtualization Technology**

  Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

- **SATA Configuration**

You can use this screen to select options for the SATA Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.





- **SATA Mode**

  Use this item to choose the SATA operation mode. Here are the options for your selection, IDE Mode, AHCI Mode.

- **Serial-ATA Controller 0**

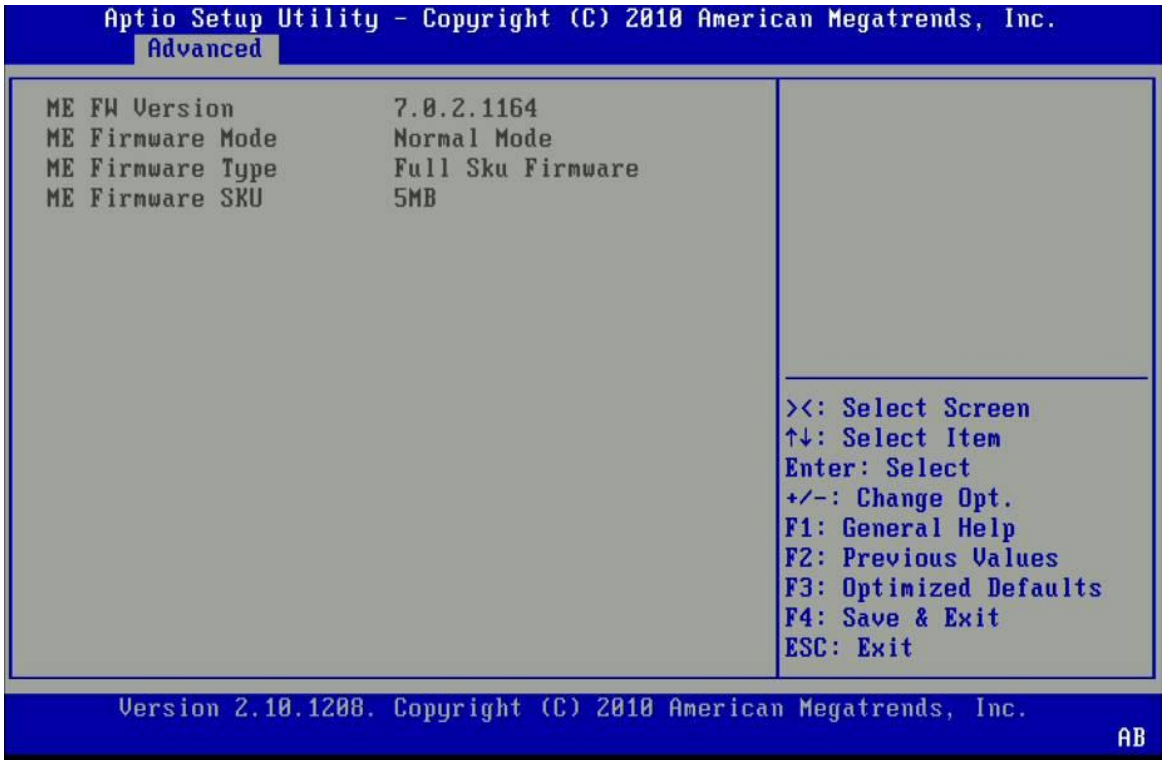
  Use this item to control the onboard SATA controller. Here are the options for your selection, Compatible, Enhanced and Disable.

- **Serial-ATA Controller 1**

  Use this item to control the onboard SATA controller. Here are the options for your selection, Enhanced and Disabled.

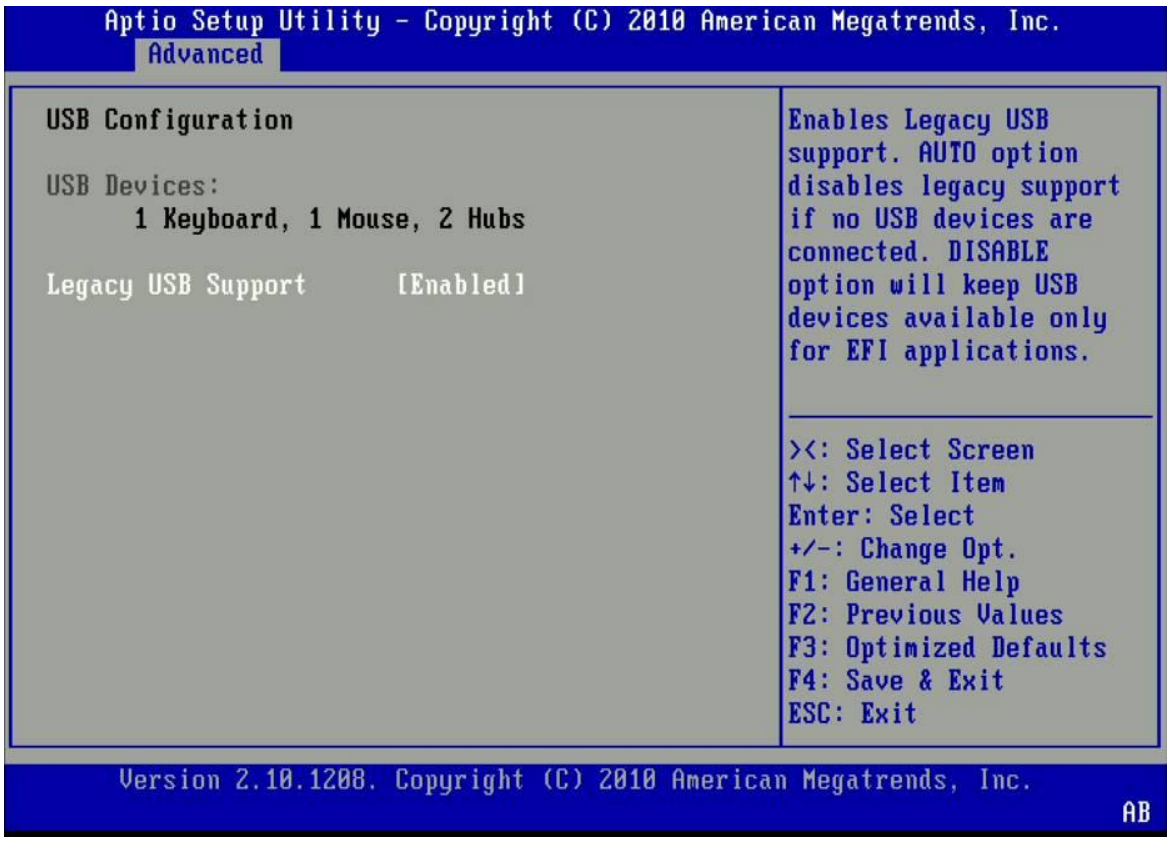
- **PCH-FW Configuration**

You can use this screen to confirm ME Firmware version.



- **USB Configuration**

You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Keyboard, 1 Mouse, 2 Hubs
Legacy USB Support [Enabled]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
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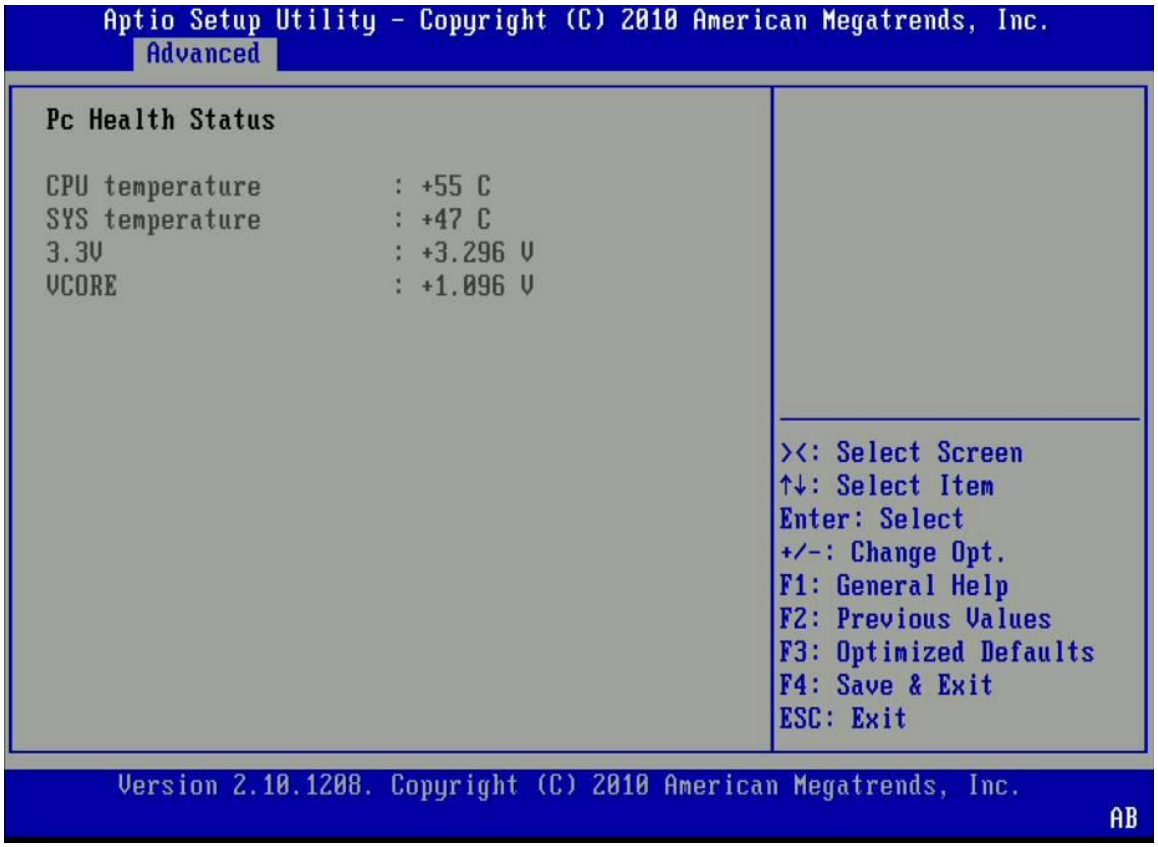
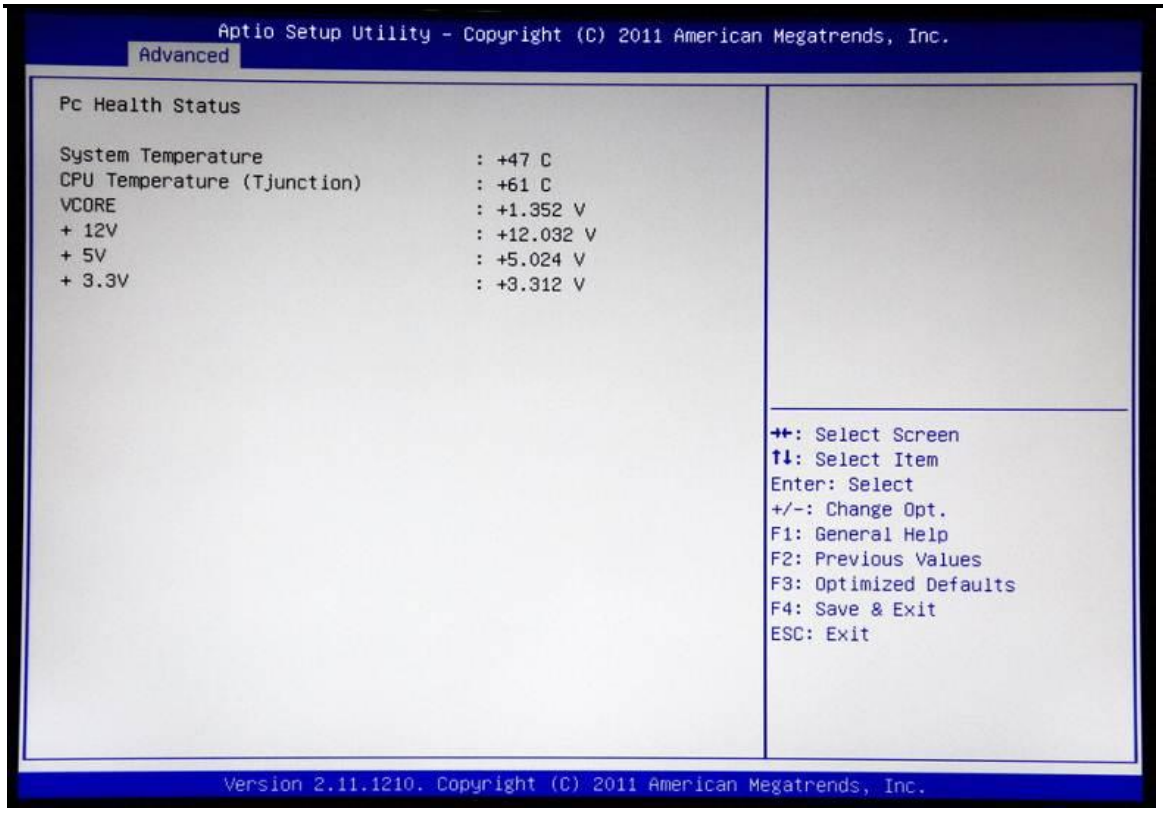
- **Legacy USB Support**

  This is for supporting USB device under legacy OS such DOS, when choosing AUTO", the system will automatically detect any USB device is plugged into the computer and enable USB legacy mode when a USB device plugged and disable USB legacy mode when no USB device is plugged.

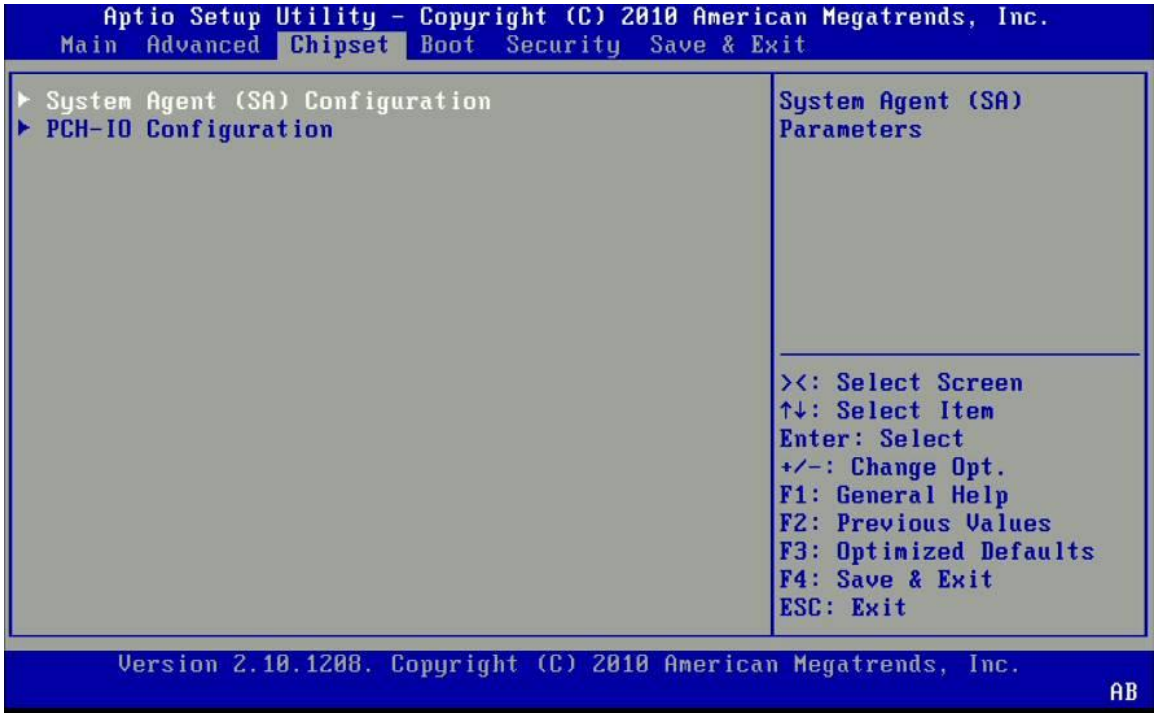
- **H/W Monitor**

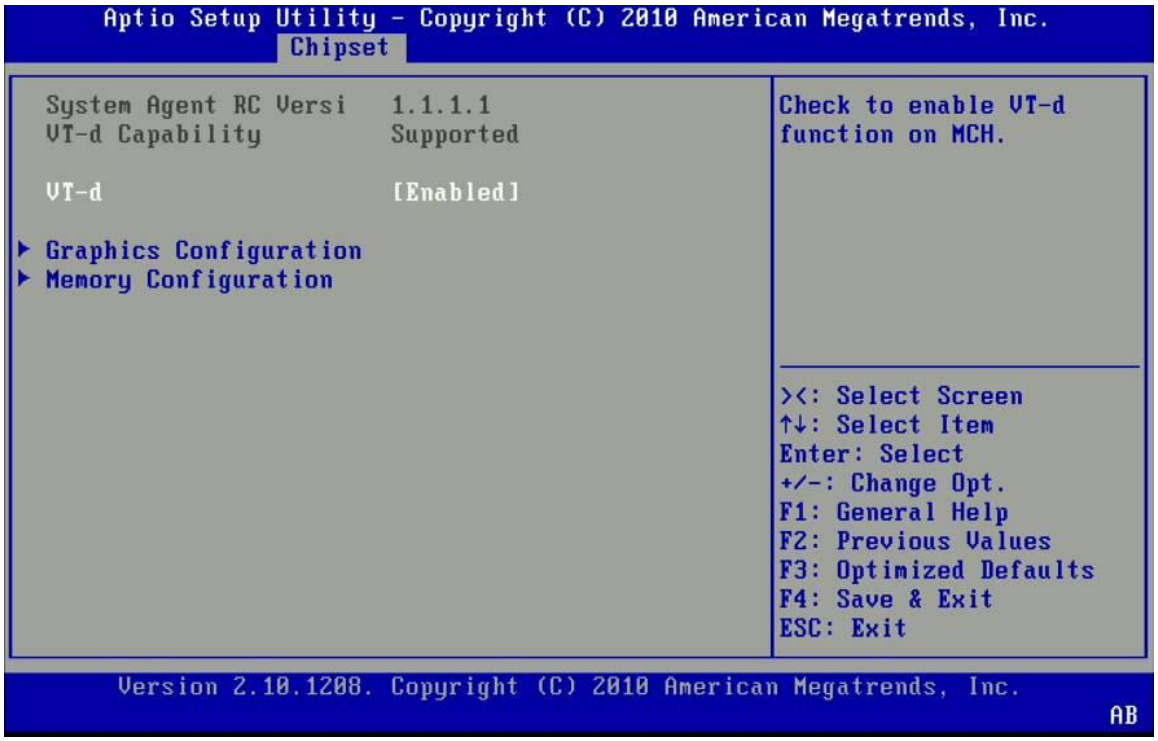
This screen shows the Hardware Health Configuration, and a description of the selected item appears on the right side of the screen




Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
Pc Health Status
System Temperature : +47 C
CPU Temperature (Tjunction) : +61 C
VCORE : +1.352 V
+ 12V : +12.032 V
+ 5V : +5.024 V
+ 3.3V : +3.312 V
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

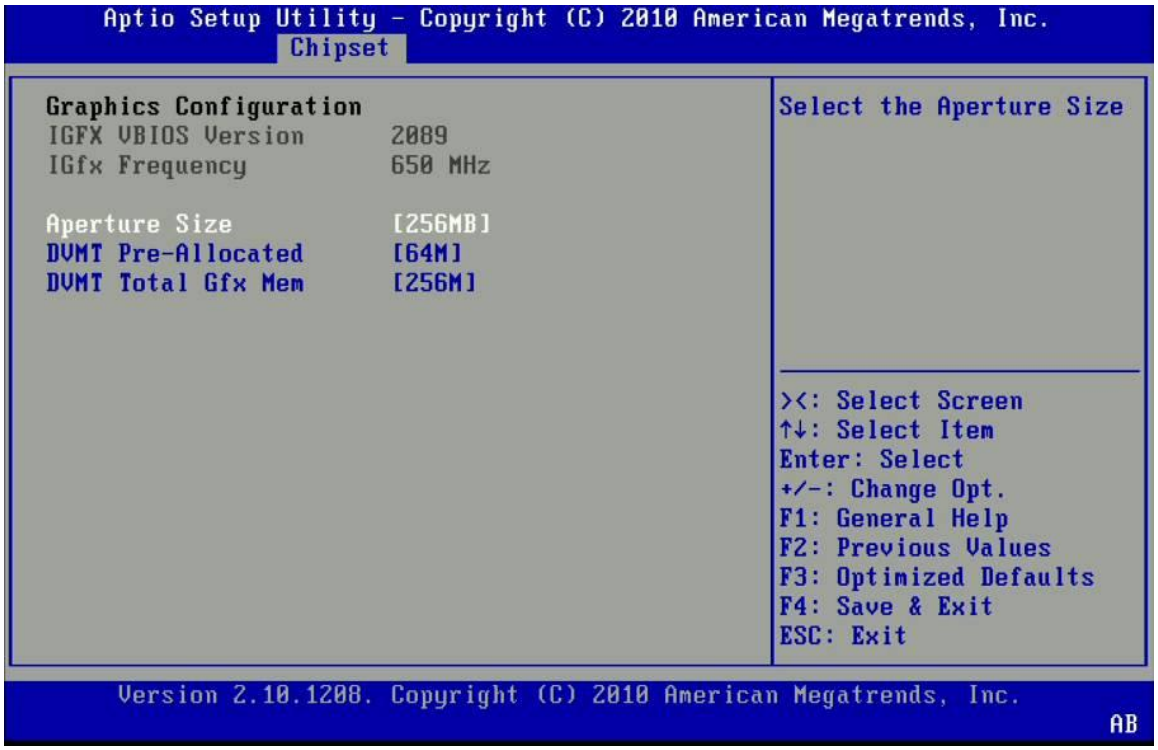
4.5 Chipset Menu





- **Graphics Configuration**

This option allows users to change the integrated graphic device settings.



- **Aperture Size**

  Aperture Size is a video configuration option that determines the amount of system memory available for direct access by the graphics device.

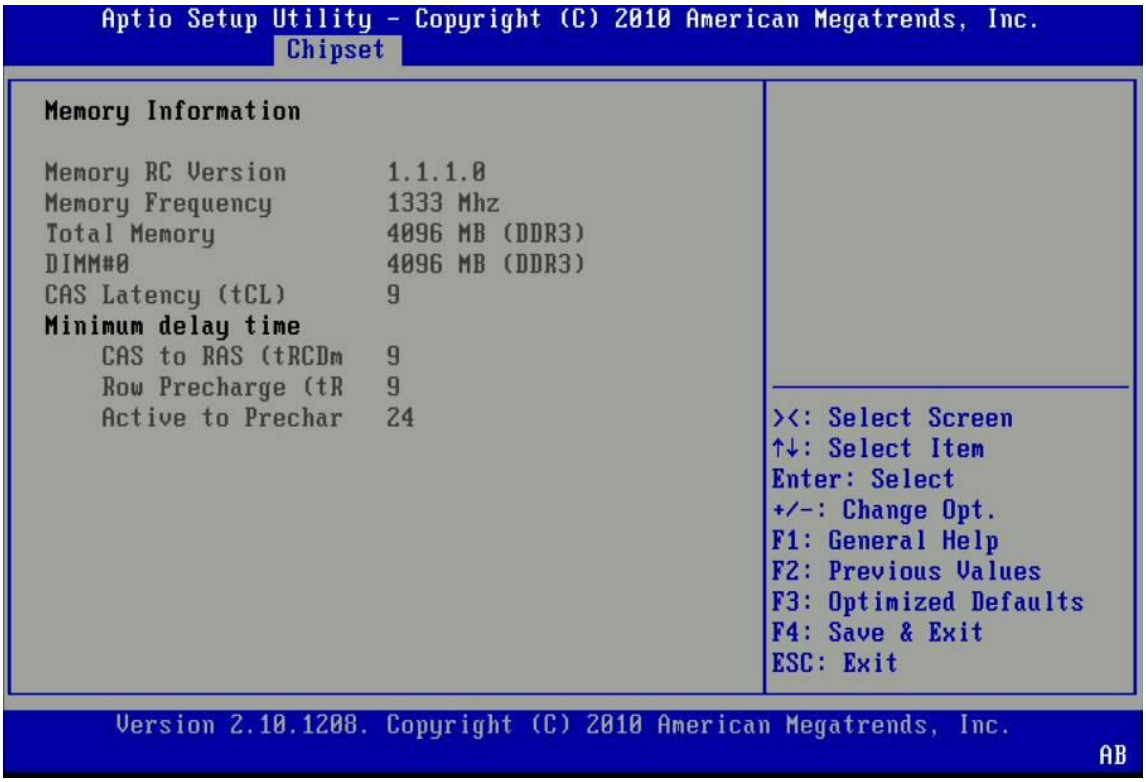
- **DVMT Pre-Allocated**

  Pre-allocated memory is the small amount of system memory made available at boot time by the system BIOS for video. Pre-allocated memory is also known as locked memory. This is because it is "locked" for video use only and as such, is invisible and unable to be used by the operating system.

- **DVMT Total GFx Mem.**

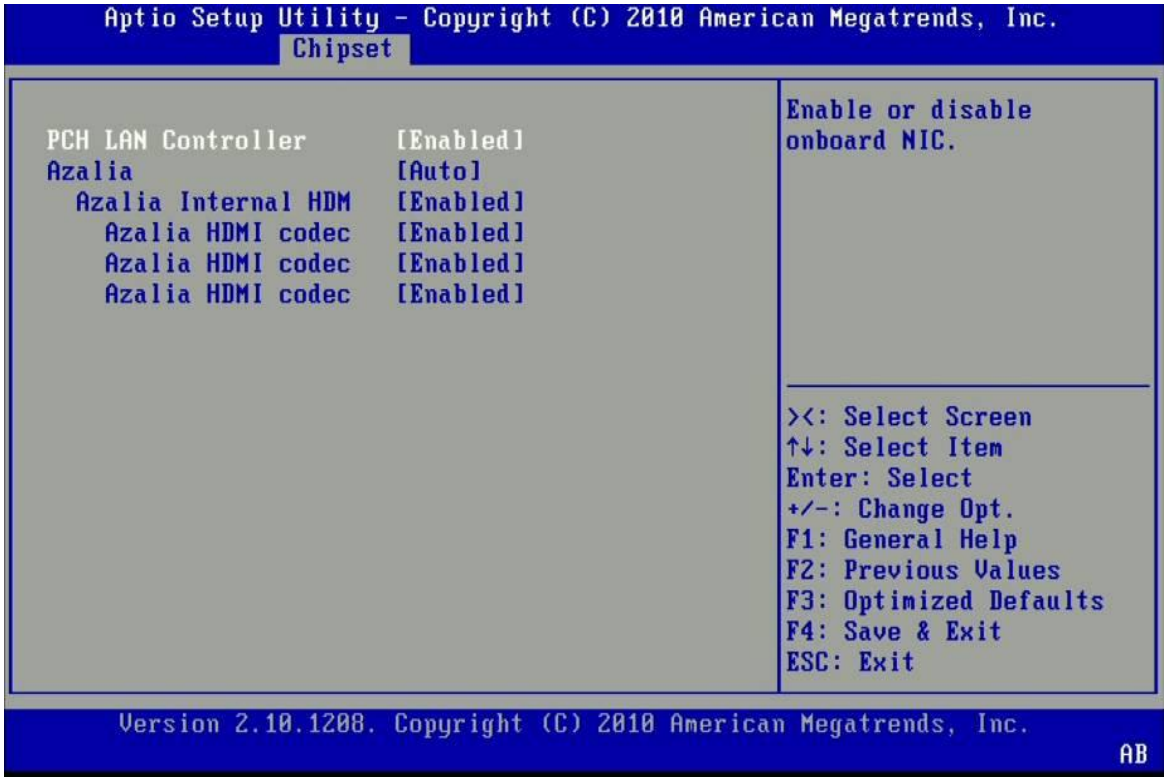
  Allow you to allocate a fixed amount of system memory as graphics memory. Here are the options for your selection, 128MB, 256MB and Maximum DVMT

- **Memory Information**



  - **Memory Configuration**

    This screen shows the memory information.



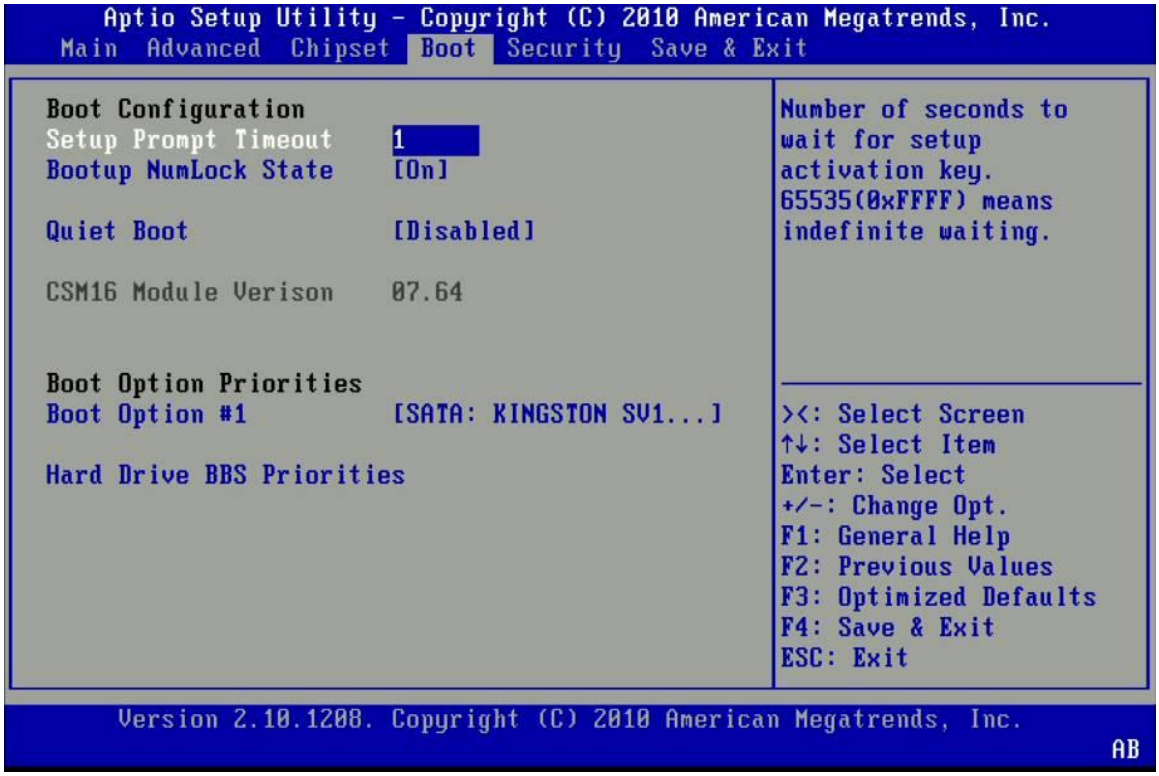
- **USB Configuration**

  You can use this item to set the USB Configuration.

4.6 Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

- **Setup Prompt Timeout**
- **Boot up Mum Lock State**
- **Quiet Boot**
- **CSM16 Module Version**
- **GateA20 Active**
- **Boot Option Priorities**


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Setup Prompt Timeout 1
Bootup NumLock State [On]
Quiet Boot [Disabled]
CSM16 Module Verison 07.64
Boot Option Priorities
Boot Option #1 [SATA: KINGSTON SV1...]
Hard Drive BBS Priorities
Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
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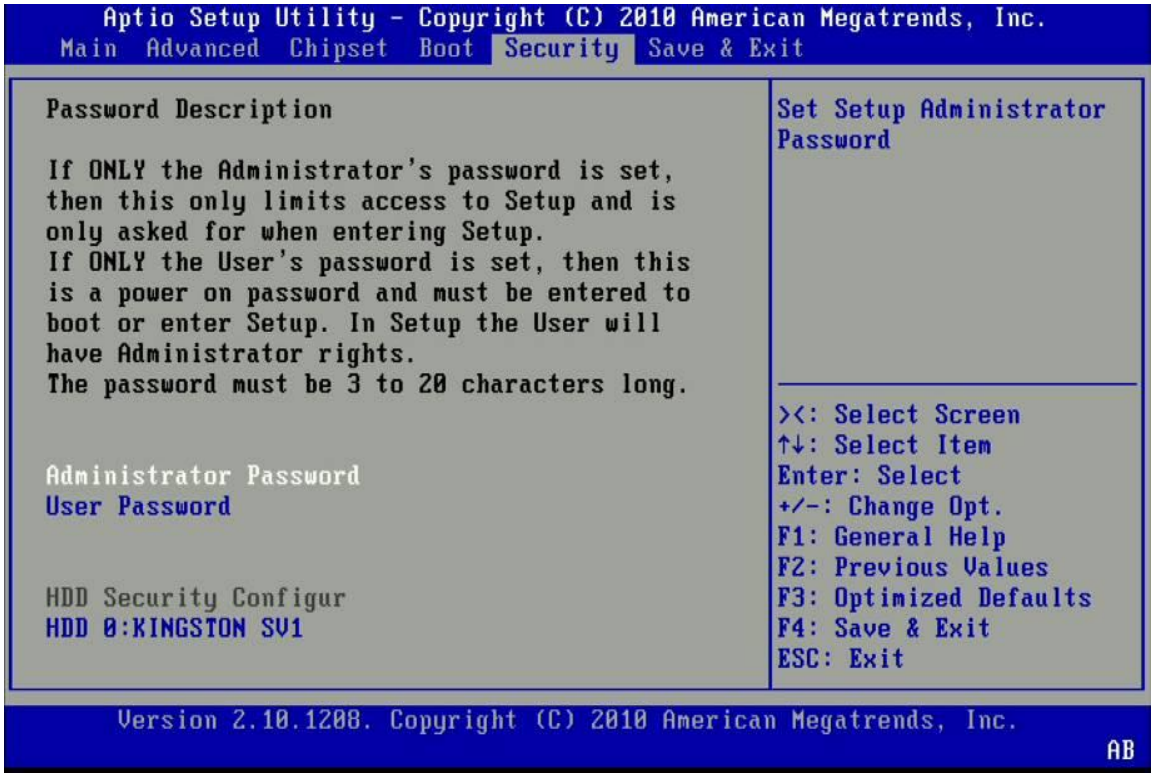
- **Setup Prompt Timeout**

Set the Timeout for wait press key to enter Setup Menu

- **Boot up Mum Lock State**
- **Use this item to select the power-on state for the Mum Lock. The default setting is on.**
- **Quiet Boot**
- **Use this item to enable or disable the Quite Boot state. The default setting is disabling.**
- **Boot Option #1**
- **First Boot Device**
- **Hard Drive BBS Priorities**
- **Prioritize the booting hard drive.**

4.7 Security Menu

The Security menu allows users to change the security settings for the system.


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password must be 3 to 20 characters long.
Administrator Password
User Password
HDD Security Configur
HDD 0:KINGSTON SV1
Set Setup Administrator Password
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
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- **Administrator Password**

This item indicates whether an administrator password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In S
have Administrator rights
The password must be 3 to
Create New Password
Administrator Password
User Password
HDD Security Configur
HDD 0:KINGSTON SV1
Set Setup Administrator Password
><: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
AB

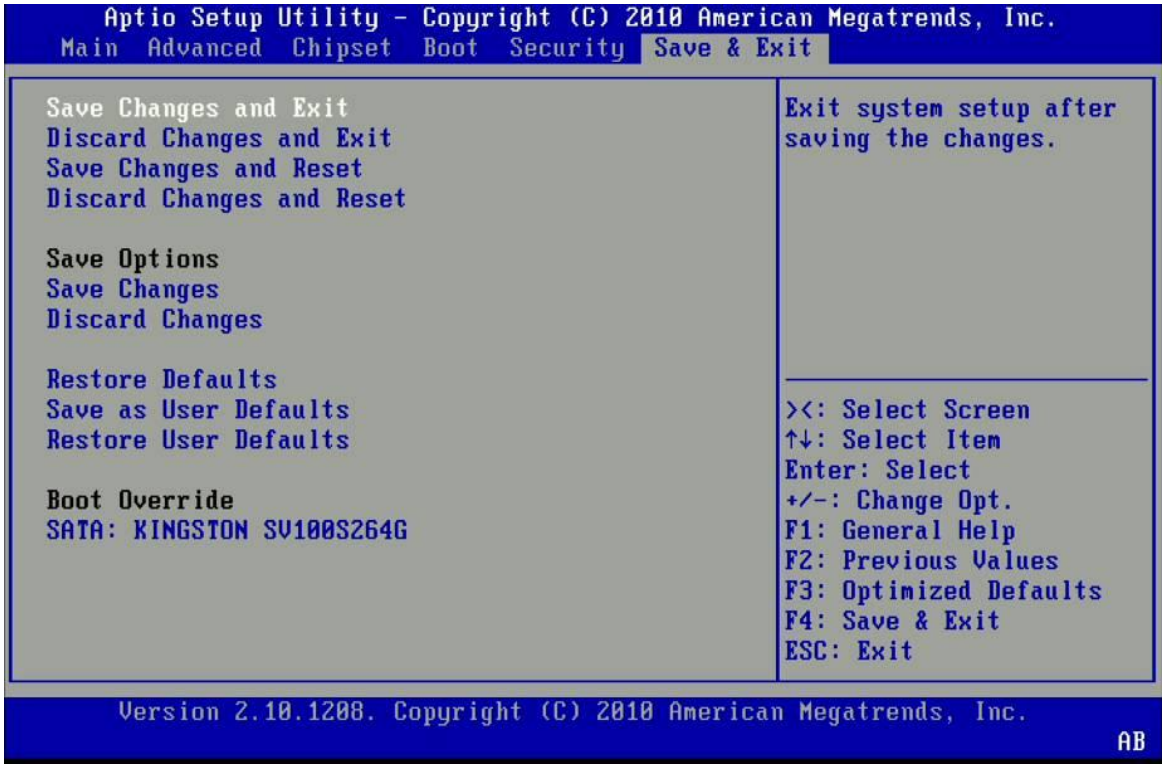
- **User Password**

  This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

- **HDD Security Configuration**

4.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or failsafe default values.



- **Save Changes and Exit**

  When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

- **Discard Changes and Exit**

  Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

- **Save Changes and Reset**

  When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select *Save Changes and Reset* from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

- **Discard Changes and Reset**

  Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select *Discard Changes and Reset* from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

- **Save Changes**

  When you have completed the system configuration changes, select this option to save changes. Select *Save Changes* from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**

  Select this option to quit Setup without making any permanent changes to the system configuration. Select *Discard Changes* from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

- **Restore Defaults**

  It automatically sets all Setup options to a complete set of default settings when you select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Restore Defaults from the save & Exit menu and press <Enter>.

- **Save as User Defaults**

- **Restore User Default**

MEMO:

APPENDIX A
WATCHDOG TIMER

About Watchdog Timer

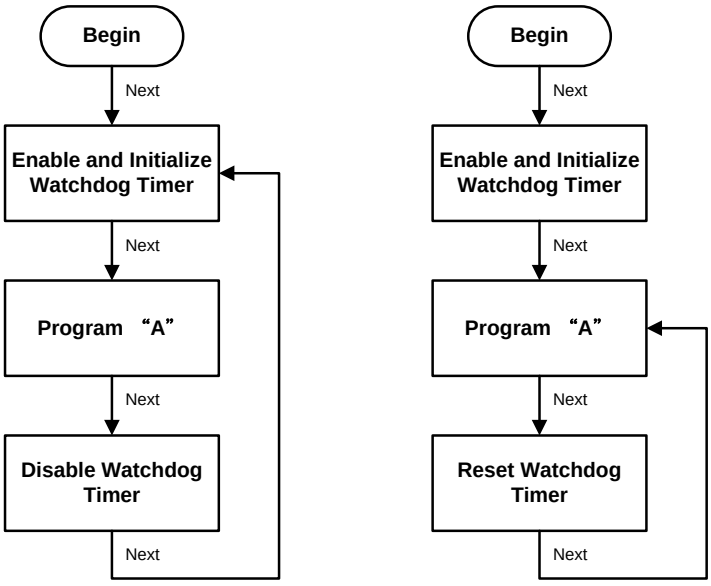
Software stability is major issue in most application. Some embedded systems are not watched by human for 24 hours. It is usually too slow to wait for someone to reboot when computer hangs. The systems need to be able to reset automatically when things go wrong. The watchdog timer gives us solution.

The watchdog timer is a counter that triggers a system reset when it counts down to zero from a preset value. The software starts counter with an initial value and must reset it periodically. If the counter ever reaches zero which means the software has crashed, the system will reboot.

How to Use Watchdog Timer

The I/O port base addresses of watchdog timer are 2E (hex) and 2F (hex). The 2E (hex) and 2F (hex) are address and data port respectively.

Assume that program A is put in a loop that must execute at least once every 10ms. Initialize watchdog timer with a value bigger than 10ms. If the software has no problems; watchdog timer will never expire because software will always restart the counter before it reaches zero.



Sample Program

Assembly sample code :

```
;Enable WDT:
mov     dx,2Eh
mov     al,87           ;Un-lock super I/O
out     dx,al
out     dx,al

;Select Logic device:
mov     dx,2Eh
mov     al,07h
out     dx,al
mov     dx,2Fh
mov     al,08h
out     dx,al

;Activate WDT:
mov     dx,2Eh
mov     al,30h
out     dx,al
mov     dx,2Fh
mov     al,01h
out     dx,al

;Set Second or Minute :
mov     dx,2Eh
mov     al,0F5h
out     dx,al
mov     dx,2Fh
mov     al,Nh           ;N=00h or 08h(see below Note)
out     dx,al
```

```
;Set base timer :
mov     dx,2Eh
mov     al,0F6h
out     dx,al
mov     dx,2Fh
mov     al,Mh           ;M=00h,01h,...FFh (hex),Value=0 to 255
out     dx,al           ;(see below Note)

;Disable WDT:
mov     dx,2Eh
mov     al,30h
out     dx,al
mov     dx,2Fh
mov     al,00h          ;Can be disabled at any time
out     dx,al
```

***Note**:*

*If **N**=00h, the time base is set to second.*

***M** = time value*

00: Time-out Disable

01: Time-out occurs after 1 second

02: Time-out occurs after 2 seconds

03: Time-out occurs after 3 seconds

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FFh: Time-out occurs after 255 seconds

*If **N**=08h, the time base is set to minute.*

***M** = time value*

00: Time-out Disable

01: Time-out occurs after 1 minute

02: Time-out occurs after 2 minutes

03: Time-out occurs after 3 minutes

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FFh: Time-out occurs after 255 minutes